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AUTHOR Prakash, A. Om
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ABSTRACT

Forty-eight white elementary school students, ages 6 to 10, received experimental treatments consisting of modeling and social reinforcement contingencies designed to influence their racial preferences. Social reinforcement significantly increased the modification of racial preferences during the treatments; modeling had a sustaining influence on the changes produced. Results indicated that it is possible to arrange modeling and social reinforcement contingencies so that children learn to make socially accepting responses to people of other ethnic groups. The influence of parents in the modeling process in terms of childrearing practices is also discussed. (Author/ST)

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EFFECT OF MODELING AND SOCIAL REINFORCEMENT ON THE RACIAL PREFERENCES OF CHILDREN.[1]

A. Om Prakash[2]

Clinical Psychologist, Wichita Falls State Hospital

Wichita Falls, Texas

Abstract

This study was designed to modify the racial preferences of six groups (four boys and four girls each) of 48 white children between the ages of six and ten. The children received experimental treatments consisting of modeling and social reinforcement contingencies designed to influence their racial preferences. Pre- and Posttest measures were taken to assess changes and stability of changes in the racial preferences of children. It was found that whereas social reinforcement significantly increased the modification of racial preferences during experimental treatments, modeling had a sustaining influence on the changes produced in the racial preferences of children. The findings of the study indicated that it is possible to arrange modeling and social reinforcement contingencies designed to teach children to make socially accepting responses to people belonging to other ethnic groups. It seems possible, therefore, to conclude that racial behaviors of children are, at least in part, the product of social learning in which social consequences of modeled behavior play an important role.

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EFFECT OF MODELING AND SOCIAL REINFORCEMENT ON THE RACIAL PREFERENCES OF CHILDREN[1]

A. Om Prakash[2]

Clinical Psychologist, Wichita Falls State Hospital

Wichita Falls, Texas

Parents have the earliest and most extensive contact with their children. They may be of primary importance in children's acquisition of ethnic prejudices. The ethnic prejudices expressed by children are significantly correlated with those held by their parents (Bird, Monachesi & Birdick, 1952). Proponents of Authoritarian Personality hypothesis (Adorno, Frenkel-Burnswick, Levinson & Sanford, 1950; Frenkel-Burnswick, 1948) and of Scapegoat Theory (Harris, Gough & Martin, 1950; Weatherly, 1963) have asserted that prejudices in children are due to child-rearing practices of parents, especially punitive discipline procedures and practices that emphasize status and power. A relatively recent series of studies (Epstein & Komorita, 1965a, 1965b, 1966) assessed the relationship between parental punitiveness and degree of social distance children felt toward outgroups. In each study, the highest degree of child prejudice occurred at the moderate level of parental punitiveness, not at the highest level as predicted by scapegoat theory. Mosher and Scodel (1960), on the other hand, did not find any correlation between child rearing practices of upper middle class mothers and ethnic prejudices of their children. The child's prejudice score was high if the mother's prejudice score was high, no matter what kind of child-rearing practices she endorsed. This research suggests that authoritarian parents perhaps teach prejudice directly in addition to using harsh discipline (Rhyne, 1962). It also indicates that authoritarianism and prejudice are determined independently and that there is no causal relationship between them, i.e., both may reflect what children learn during the

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process of socialization (Collins, 1970). Specific and consistent learning or discipline procedures, however, can probably change racial prejudice.

It appears that social modeling influences, in part, determine the way in which parents raise their children, and these child-rearing practices (modeling behavior of parents) in turn influence the behavior of their children (McCandless, 1961). Since child-rearing practices of parents are, at least in part, composed of modeling behavior of parents, children may acquire the prejudices of their parents through modeling effects (Bandura & Walters, 1963). Bandura (1965a) holds that children's witnessing the behavior of social models and of the consequences of modeled behavior can exert a powerful influence on their behavior. Children may acquire characteristics of racial response modes through observing the behavior of social models. Ethnic prejudice, consequently, may be regarded as vicariously learned racial behavior--learned through the modeling of the behavior of parents and other significant persons in a child's social environment. Observation of the responses of social models and favorable consequences to the models of their responses, results in spontaneous performance of the same responses by children. These modeling effects tend to generalize to similar responses (Bandura, 1962, 1965a; Bandura & Walters, 1963).

The Problem

In childhood, social play is the most dominant mode of behavioral expression. What children do in interracial play situations should be an indication of their racial preferences, which might be demonstrated by such actions as choosing playmates and fixing blames. Stevenson and Stewart (1958) confronted children with samples of ambiguous interracial social play situations to study their racial awareness and preferences. Clark and Clark (1958) studied the development of racial awareness, identification

and preferences in black and white children through doll play. Studies such as these indicate that racial preferences of children are manifested by the racial choices they make in interracial social play situations (imaginal and most probably real also). It is possible, therefore, to study the racial preferences of children by investigating the racial choices within imaginary interracial social play situations. Further, it appears possible that racial choices and consequently the preferences of children can be modified by constituting modeling contingencies determined to elicit, transmit and enhance modes of response that are appropriate.

Behavior resulting from modeling effects is oftentimes an occasion for social reinforcement (Bandura & Walters, 1963). Therefore, social consequences can be attached to modeling stimulus in order to enhance the effectiveness of social learning. The present study was designed to investigate the effect of modeling and social reinforcement on the racial preferences of children. The emphasis in this study was on the modification of racial response preferences of children. The following hypotheses were proposed:

1. Modeling would have significant effect in modifying the racial choices of children.
2. Social reinforcement would significantly influence the racial choices of children.
3. Sex of children would be a significant variable in the modification of racial choices, since boys are more likely than girls to be aggressive, and prejudice may be considered an aggressive behavior directed toward outgroups.
4. Sex of the model would influence the racial choices of children, as they are more likely to identify with (initate the behavior of) the models of their own sex.
5. The racial choices of older children would be more easily modifiable than

younger children, since older children are better able to code modeled events symbolically into functional mediators of overt behavior.

The Method and Procedures

Experimental Design

This study involved three major operations: (1) Pre- and Posttest measures: differences between these measures were taken to assess the direction of change in the racial choices of children, (2) experimental treatment which consisted of social learning experiences designed to influence children's racial choices, and (3) the recall measure which was introduced to study the extent to which children retained and may have used the information presented during the experimental treatment.

The experimental treatment involved a 3x2x2x2 factorial design. The two principal factors were modeling (3 conditions) and social reinforcement (2 conditions) (See Table 1). In addition, each cell was further stratified according to age (6-8 and 8-10 years) and sex of children. The sex of the model was systematically distributed within each cell.

Insert Table 1 about here

The Subjects

Children from three Missoula, Montana elementary schools participated in the study. At the time this study was conducted, there were about six black children enrolled in these schools and a similar situation existed in other Missoula schools. Every third child from the school roster was picked until 144 white boys and 144 white girls between the ages of six and ten were found for the preliminary sample. The children in the preliminary sample were within the range of normal intelligence according to school records and came from lower socio-economic homes. Of the 288 set of parents,

178 allowed their children to participate in the study. There were 89 white boys and 89 white girls available for the study at the end of the preliminary phase. No significant initial differences were found in the racial choices of 120 children who received Pretest measures in the preliminary sample ($F=1.66$, $df=2,120$; N.S.). Of these children, 48 (24 boys and 24 girls) were selected for actual participation in the study and the others were dropped.

Composition of Experimental Groups

The criterion of final inclusion of children in the study was tied to the formation of six experimental groups of 8 children each. Children in each school who were of proper age and sex were randomly assigned to the experimental groups; the only requirement was that the mean Pretest score of the group was at least equal to the median score of 120 children who received the Pretest measures. (Median score = 8.00; maximum possible score 12.00).

Experimenters and Models

There were eight adult female Es, four adult (two men and two women) models and six child (three boys and three girls) models involved in the study. All adult participants were University of Montana undergraduate students who received class credit for their participation. The child models were recruited from the schools participating in the study (two from each of the three participating schools - one boy and one girl each).

The eight female Es were assigned to four teams of two each. A team had two female Es and one male model. One of the Es in each team served as team leader. The assistant E also served as an adult female model. The child models in each school worked with the teams. The investigator served as the principal E and directed the training for the Es and models who actually conducted the entire experiment. No

differences were found between the operative teams, as indicated by the scores of children who participated in training exercises. There were, thus, no team effects involved in producing changes in racial choices of children.

The Instruments

Three instruments were used in this study. All these instruments contained stories which were presented orally, visually or through role enactment and utilized story materials adapted to the comprehension level of children as determined by a pilot study.

The Incomplete Stories Test (IST)

A Pre- and Posttest measure, the IST consisted of 18 color slides, 12 of which were test slides and six buffers. The 12 test slides depicted social play situations in which there were one or two central characters with others in the foreground or background. The central characters on most slides were shown in the rear view and were ambiguous with regard to race. The pictures were balanced so that whites and blacks appeared equally often on left or right and children of the same race were not depicted together. Six of these slides were adapted from Stevenson and Stewart's (1958) Incomplete Stories Test. There were six buffer slides in which only white children appeared, otherwise these slides depicted the same kind of social play situations as the 12 test slides. The buffer slides were randomly distributed throughout the presentation of 18 slides. All slides were presented in the fixed random order.

The procedure for administering the test was as follows: the S was seated so he could view a movie screen and was given a pointer. The E sat opposite the child and also had a pointer. The assistant E then presented a slide. The E pointed out to the child the context of the social play situation depicted in the slide picture while

the story about the slide was being related on the tape recorder. (The assistant E started the tape recorder simultaneously as the slide was projected.) As soon as the S had looked the slide picture over, E asked specific question(s) designed for the slide. S answered by pointing a character in the picture.

Example of a Test Slide

Slide. Four boys (two white and two black) are playing catch ball in the school yard. A fifth boy is lying face down beside a fallen bike.

Story. This little boy (the boy lying face down) was riding his bike in the yard; one of these boys (the boys playing catch ball) was mean to him and pushed him down.

Question(s). "Who do you think pushed him down?", and then, "Who do you think is going to come over and see if he is O.K.?"

In order to obviate position preferences, E and S changed sides after half the slides had been presented. E arranged to be present on one or the other side of Ss 50 percent of the time. No visual cues of approval or disapproval of S's responses were provided while he made his response.

Story Enactment Technique (SET)

The experimental treatments were administered through the procedures of the SET. This test utilized 26 stories--two demonstrations, six buffer and 18 test stories. The test stories had both black and white characters whereas the buffer stories had all white characters. Each story described a social situation which pertained to some specific aspect of life in a miniature town, a toy community which contained a railroad track and railroad station, a bridge over the river and a highway with subsidiaries through the downtown and a residential area, a school and a farm house, and

a park and a mountain trail. The stories were neutral and did not have any racial connotation, except the choice which had to be made as to the characters represented by white and black dolls. The situations described in the stories along with the doll characters were present in the toy community, except those doll characters which were to be chosen by the Ss.

The procedure for administering the test consisted of the assistant E putting on the proper site in the toy community, props for the story about to be heard on the tape recorder and part of the cast (characters represented by dolls). The doll representing the main character was placed in duplicate, on a little bench in front of the S and a similar set on a little bench in front of the model. In 'buffer stories' both the dolls representing the main character were white, whereas in test stories, there was one white and one black doll. The test story dolls were exactly alike except their color. The assistant E then started the tape recorder. While the story was being told on the tape recorder, E pointed out the structural details and characters placed in the toy community. At the end of the story, E turned toward the model and said: "Here are two boys/ girls/ men/ women in front of you. You are free to choose either one of them to be the one who... . Will you please choose one and show us what happened?" The model (who was a confederate in the experiment) always chose the black doll when both black and white dolls were presented together. He then enacted the story by placing the chosen doll on the appropriate spot in the toy community and showed what happened in full view of the S. E then socially reinforced the model by making such remarks as: "Good" or "Fine". This procedure constituted direct modeling stimulus and vicarious social reinforcement for the S. Now E turned toward the S and repeated the request for choosing one of the dolls in front of him on a little bench and enact the story. If the S completely imitated the model, E also socially reinforced him by saying, "Good" or "Fine". In case the S made the wrong

choice of doll and/or enacted the story improperly (i.e., did not completely imitate the model) he was not socially reinforced.

The procedure described above is relevant to only two of the six experimental conditions in this study, namely, adult or child modeling and social reinforcement. Under experimental conditions involving modeling (adult or child) alone, the model made his choice of dolls and enacted the story appropriately but received no social reinforcement. The S also did not receive social reinforcement even when he completely imitated the model, i.e., made appropriate choice of doll and enacted the story appropriately. The remaining two experimental conditions involved no modeling, i.e., no models were present and only Ss were involved. Under one of these conditions, social reinforcement was delivered to the S if he made the appropriate choice of doll, and enacted the story appropriately. The control condition involved no modeling and no social reinforcement.

Example of a Test Story

Story. A girl and her two friends (one black) decided to play hospital. One girl (black) asked if she could be the doctor first. The other two girls agreed.

Social Situation. Two white dolls are sitting in the back yard of a house. A set of two dolls, one black and one white, is placed on a little bench in front of the S and a similar set on another little bench in front of the model (if there was a model involved in the experimental condition).

Instruction. "You have two girls in front of you. You are free to choose either one of them to be the one who asked to be the doctor first. Will you please choose one and show us what happened?"

Story Recall Test (SRT).

The SRT consisted of 24 partial stories used in the SRT. The S listened to a partial story on the tape recorder while E pointed to the structural details in the toy community without the dolls. At the end of the story, E asked a question about the main character in the story which was chosen from a set of two dolls during experimental treatment. The same procedure was followed for all the stories, but data from the demonstration stories was not included in the analysis. It was assumed that if the S answered the questions on the stories correctly, he remembered the salient information presented through the stories. Some of the Ss volunteered incidental information other than that intended in the questions on the stories (e.g., what they thought was going on in the stories or what they saw the model do). However, this information was not directly used in the analysis of data in this study.

Example of a Recall Story

Partial Story. Three girls were playing hospital.

Question. Whom did they let be the doctor first?

Administration of Tests

Three individual test sessions were held with each S.

First session: IRT-half hour

Second session: SRT-one hour; IRT-half hour

Third session: SRT-half hour; IRT-half hour

The study was completed in 8 weeks. During Phase I, 120 children (out of a total of 176 available for the study) were administered the IRT; of these, 48 children were selected for actual participation in the study and the others were dropped. After one week of Phase I, during Phase II, Ss first received the SRT and immediately afterwards during the same session Posttest I (IRT). There was an interval

of two weeks between Phase II and Phase III. During Phase III, Ss were administered the SRT and immediately afterwards within the same session Posttest II (IST). This completed the collection of data for the study.

Procedural Controls

A number of procedural controls were introduced. First, the staff was made aware of experimenter bias influences and a training session was devoted to its explanation. Further, the investigator was careful not to give away the hypotheses of the study. Second, in order to ensure confidentiality of information, an effort was made to involve the child models in the study by making them feel that they were helping the Es to help other children like black people as they themselves did (only those children who obtained highest black choice scores on Pre-test served as models). And finally each child S was dealt with carefully to prevent exchange of information among children. Children were made to feel that they were sharing a secret about what they saw and did during their sessions with a friendly adult. Moreover, children came to the experimental sessions at different dates and were escorted by different members of the team.

Results

There were five factors involved in this study--modeling, social reinforcement, age and sex of children and sex of models. A t-test for the significance of differences between the racial choices of children who observed male models and those who observed female models during treatment indicated that sex of the model did not significantly influence their racial choices ($t=.24$, $df=30$; N.S.). It was, therefore, decided to drop the 'sex of the model' factor from further consideration and conduct analysis of variance involving the four factors only.

Multifactor Analysis of Treatment Measure

A multifactor completely randomized design was adopted to analyze the data on the treatment measure. This analysis indicated that social reinforcement was significant at five percent level ($F=4.43$, $df=1,24$; $p<.05$). Modeling was not found to have a significant influence on the racial choices of children during the treatment. However, the interaction of modeling and social reinforcement approached but did not reach statistical significance ($F=3.28$, $df=2,24$; $p<.10$). Neither sex nor age of children was found to be significant, but social reinforcement interacted significantly with sex of children ($F=5.47$, $df=1,24$; $p<.05$).

Social Reinforcement. A comparison between the white racial choices of children with or without social reinforcement (mean scores 7.13 versus 9.37, Table 2) indicated that children who received social reinforcement made significantly fewer white racial choices than did those who did not receive social reinforcement.

Insert Table 2 about here

Modeling. A visual inspection of data on modeling in Table 2 suggests that children who observed a model, adult or child, did not differ from each other in their white racial choices (mean scores 7.50 and 7.44 respectively) and on the average made fewer such choices than did those children who observed no models (combined modeling mean 7.47 versus no modeling mean 9.81).

Interaction of Modeling and Social Reinforcement. A further examination of data in Table 2 indicates that in the absence of social reinforcement, children made fewer white racial choices when they observed adult models (mean score 7.12) than when they observed child models (mean score 8.25). On the other hand, those who received social reinforcement made fewer white racial choices when they observed child models (mean

score 6.63) than when they observed adult models (mean score 7.88). Therefore, social reinforcement perhaps was more effective when children observed adult models (mean scores 7.88 versus 7.12). However, the main source of modeling and social reinforcement interaction appear to be located in the responses of children who observed no models. Of these children, those who received social reinforcement made fewer white racial choices (mean score 6.88) than did those children who did not receive any social reinforcement (mean score 12.75).

Age and Sex of Children. A visual examination of data on the white racial choices of older (8 through 10) and younger children (6 through 8) indicated that older children displayed a tendency to make fewer white racial choices (mean score 7.45 versus 9.04). There appeared no difference between the white racial choices of boys and girls (mean score 8.29 versus 8.20).

Interaction of Sex and Social Reinforcement. A comparison of the white racial choices of boys and girls indicated that boys made significantly fewer such choices when they received social reinforcement (mean score 5.92) than when they did not receive social reinforcement (mean score 10.66). Virtually no difference appeared in the white racial choices of girls who received social reinforcement (mean score 8.33) and those who did not receive social reinforcement (mean score 8.08).

As there were only female Es involved in this study, it is difficult to make any statements regarding the effect of E sex on the racial choices of children. However, the fact that sex of the model had no influence on the racial choices should not be taken to imply that sex of the experimenter should also have had no differential effect.

Comparison of Treatment and Recall Measures

On the average children recalled three out of four stories on the SRT (mean score

11.82; maximum possible 18.00). A simple analysis of variance of recall means indicated that children in any experimental group did not recall more stories than did children in any other group ($F=.94$, $df=5,42$; N.S.). However, the number of stories recalled by children were consistently greater than the number of stories on which they had made white racial choices during the experimental treatment. No relationship was found between the number of stories on which children made white racial choices and number of stories recalled ($r=.08$). This suggested that making white racial choices in connection with stories during treatment and later recall of the stories are unrelated events.

Analysis of the Effects of Differential Treatment

A three factor repeated measurements design (Winer, 1962, pp.337-349) was employed to analyze the racial choices of children on Pre- and Posttests. Two separate analyses involving this design were conducted.

Effect of Modeling and Social Reinforcement on the Changes in the Racial Choices of Children

Analysis of data involving modeling and social reinforcement indicated a highly significant difference between the repeated measures on the IST ($F=17.24$, $df=2,84$; $p<.001$). The main effect of modeling approached but did not reach statistical significance ($F=2.46$, $df=2,42$; $p<.10$). Social reinforcement, however, was non-significant.

Repeated Measures. Table 3 reports the Pre- and Posttest white racial choices of children who received differential modeling treatments.

Insert Table 3 about here

A test on the significance of difference between the Pretest mean white racial choices (8.20) and the combined mean white racial choices on Posttests I and II (6.52)

indicated that on the average children made significantly fewer white racial choices after the treatment ($F=50.37$, $df=1,84$; $p<.001$). However, no significant difference was found in the mean white racial choices of children between Posttest I and Posttest II ($F=1.31$, $df=1,84$; N.S.). Therefore, the principal change in choice making behavior of children appeared to have occurred between Pretest and Posttest I. The mean white racial choices of children on Pre- and Posttests I and II are graphically presented in Figure 1.

Insert Figure 1 about here

Modeling. A one degree of freedom comparison between children who observed a model was partitioned from the modeling main effect (Table 3). Children who observed a model (adult or child) made significantly fewer white racial choices than did those who did not observe a model ($F=24.74$, $df=1,42$; $p<.01$).

Interaction of Modeling and Social Reinforcement. A visual examination of data in Table 3 indicates that, on the average, children who observed child models made relatively fewer white racial choices after the treatment than did those children who observed adult models (mean scores 5.93 and 5.62 versus 6.50 and 6.00). Further, children who observed a model (adult or child) made fewer white racial choices than did those children who did not observe a model (mean scores 6.50 and 5.93 versus 7.56; mean scores 6.00 and 5.62 versus 7.56). Thus observing a model was superior to observing no model at all.

Social Reinforcement. Social reinforcement did not influence the white racial choices of children on the repeated measures.

Effect of Age and Sex Variables on the Changes in the Racial Choices of Children

The analysis of repeated measurements data involving age and sex of children yielded a highly significant ($F=16.56$, $df=2,88$; $p<.001$) difference between the repeated

measures of the IST. Further, the age of children was found to be significant ($F=6.24$, $df=1,44$; $p<.05$). However, sex of children was not significant.

Age of Children. A comparison between the age levels (mean score 7.64 versus 6.52) showed that older children made significantly fewer white racial choices than did younger children.

Sex of Children. The effect of sex on the Pre- and Posttest racial choices of children was non-significant and there were no significant differences in the white racial choices of boys and girls on the repeated measures of the IST (mean score 7.07 versus 7.09).

Discussion

According to Bandura (1965b) the learning of matching responses involves variables that operate at the time of exposure to modeling stimuli, whereas the performance of matching responses depends upon the factors which govern persons' willingness to perform what they have learned. Within the context of this study, the responses of children on the IST (repeated measures) indicate their willingness to perform what they had learned earlier during the experimental treatments of SET. Therefore, changes in racial choices of children on IST primarily involved performance of racial behaviors.

Hypothesis 1. Modeling alone was not found to have a significant influence on the white racial choices of children during the experimental treatments. A closer examination of modeling data, however, indicated that children who observed a model, adult or child, did not differ from each other in their racial choices, and on the average tended to make fewer white racial choices than did those children who did not observe a model. Further examination of data indicated that social reinforce-

ment is more effective when children observe child models, whereas modeling alone is effective when children observe adult models. This difference may be attributed to the observation that whereas children acquire racial behaviors by automatic imitation of the behavior of adult authority figures, social reinforcement contingencies are more important in producing conformity to peer culture. Finally, the analysis of modeling data on the effects of differential treatments revealed that children who had observed models made significantly fewer white racial choices on the Posttests than did those children who had observed no models. This finding suggests that children learn certain incidental environmental cues while imitating the discriminatory behavior of models and that this incidental learning later guides their discriminatory responses in the absence of the model (Bandura, 1968).

Hypothesis 2. Social reinforcement was found to have a significant effect on the racial choices of children during experimental treatments, i.e., children who received social reinforcement made significantly fewer white racial choices than did those children who did not receive social reinforcement. However, the effect of social reinforcement on the white racial choices of children on the repeated measures of the IST subsequent to differential treatments was non-significant.

These findings and those reported under hypothesis 1, suggest that socially rewarding consequences of modeled behavior influence the racial behavior of children in interracial social situations. Children between the ages of six and ten are learning to adjust to social contingencies in the school and the neighborhood. Social consequences begin to exercise greater control over their behavior (Horowitz, 1936) even though they still model their responses after, and learn through the observation of the behavior of others. Competition for social approval from teachers and other authority figures induces children to make responses that are socially rewarding.

A response repertoire is gradually built up over a period of time which makes certain kind of responses more probable than others. By the time they are six years old, children begin to show clear indications of preferences in their interaction with children belonging to other ethnic groups. This socialization may, in part, be based upon social consequences of observationally learned racial responses. Further, since there were few opportunities for children in Missoula, Montana, to come in direct contact with black people, it appears that racial preferences of children are not only determined by actual contact with black people, but also by coming into contact with prevailing racial attitudes toward them (socialization of prejudice).

Hypothesis 3. The main effect of sex on the racial choices of children on the treatment measure (IST) as well as repeated measures (TST) was non-significant. The lack of significant sex differences in this study could be due to cultural factors involved in the learning of racial behaviors in Missoula, Montana.

Sex of children interacted significantly with social reinforcement. The interaction data indicated that boys responded much more favorably (made fewer white racial choices) than did girls to social reinforcement dispensed by female adults. This suggests that while boys and girls imitate similar behaviors and respond similarly to both male and female models, the female dispenser of social reinforcement appears to exercise more influence on the racial choices of boys than she does on girls. A possible inference from these results is that stronger social influence may emanate from the mother and female teacher for boys, i.e., a racially prejudiced mother or a racially biased teacher is more likely to influence the racial behavior of boys than of girls as a dispenser of social reinforcement.

Hypothesis 4. Sex of the model did not differentially influence the racial

choices of children during the experimental treatments. It may be that imitative behaviors involved in the behavioral enactment technique were not sufficiently sex-typed to elicit differential responsiveness from boys and girls. The present study did not produce data that bore directly on this point.

Hypothesis 5. The analysis of data on the treatment measure indicated that age of children was not a significant variable in the racial choices of children. The analysis of differential treatment effects (repeated measures on IST), however, showed that older children made significantly fewer white racial choices than did younger children. These findings suggest that within the immediate learning situations, such as those involved in the treatment conditions of this study, both younger and older children are equally capable of responding to modeling and social reinforcement contingencies; however, older children are better able to retain the observationally learned racial behaviors when these contingencies no longer exist. The greater retention of observationally learned racial behaviors in older children may have been due to their better developed capacity for mediational representation, symbolic coding and later recall of modeled racial behaviors (Bandura, 1969). Williams and Edwards (1969) hold that attitude toward skin color acts as one support for attitude toward race. Older children, it would seem, are capable of using one concept to support the other. Horowitz (1939) found that ability of children to identify themselves with their own racial group is a part of their ability to identify themselves. Perhaps older children are better able to identify themselves and those who do not look like themselves in terms of external physical characteristics and the capacity to do so enables them to retain observationally learned racial behaviors over a longer period of time.

General Discussion

Even though children in this study were able to recall most of the information

stemming from modeling and social reinforcement contingencies during the experimental treatments, they probably were not using that information in making their racial choices on the Posttests. However, the analysis of differential effects of experimental treatments indicated that the white racial choices of children on the three administrations of IST significantly differed from each other. This difference appeared mainly between the racial choices of children on Pretest and Posttest I with no significant difference in the racial choices on Posttest I and II. Bearing in mind that there was no control group in this study to account for the practice effect of repeated administrations of IST, it may be stated that the absence of change in the racial choices between the Posttests provides, in rather a limited way, some evidence of stability of treatment effects. Further, comparing treatment and Posttest results, one notices the fact that stimulus situations in IST and SET were different (e.g., pictorial versus life like stimuli, pointing stimulus objects versus choosing stimulus objects and enacting stories with their help, etc.), which seems to hint that the effect of training during SET does generalize to some extent. These findings suggest that children in this study showed a clear increase in the inclination to respond to black people in a socially accepting manner within the experimental setting. It is noteworthy that since Ss were selected not to be high, but rather to be average on the Pretest scores, the design was somewhat conservative and, therefore, the changes observed were rather impressive.

Conclusion

The findings of this study have indicated that one method by which racial preferences can be modified is through socially rewarding consequences of modeled racial behavior. It seems possible, therefore, that racial behaviors of children are, at

least in part, the product of social learning in which social consequences of modeled behavior play an important role. In conclusion, it is possible to arrange combinations of modeling and social reinforcement contingencies to teach children belonging to one ethnic group to make socially accepting responses to children belonging to other ethnic groups. This implies that racial behaviors manifesting racial attitudes of children can be modified and explained by the same principles of learning which are applicable to any form of learned behavior.

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Footnotes

1. The present paper is an abridged version of the dissertation submitted as a partial fulfillment of the requirements for the Ph.D. degree to the University of Montana, Missoula, Montana. The author expresses his sincere appreciation to Professor John M. Atlhowe and Professor Odin C. Vick under whose direction this research was conducted.
2. Requests for reprints should be sent to A. Om Prakash, Clinical Psychologist, Wichita Falls State Hospital, P. O. Box 300, Wichita Falls, Texas 76307.

TABLE 1

Experimental Design of the Study

N = 48

	Social Reinforcement	
Modeling	Administered (+)	Not administered (0)
Adult	Group 1	Group 2
Child	Group 3	Group 4
None	Group 5	Group 6

Six experimental groups of eight children each

TABLE 2

Mean White Racial Choices of Children Receiving Modeling and Social Reinforcement

	Social Reinforcement		Total
	Administered	Not Administered	
Modeling	(+)	(0)	
Adult	7.88	7.12	7.50
Child	6.63	8.25	7.44
None	6.88	12.75	9.81
Total	7.13	9.37	8.25

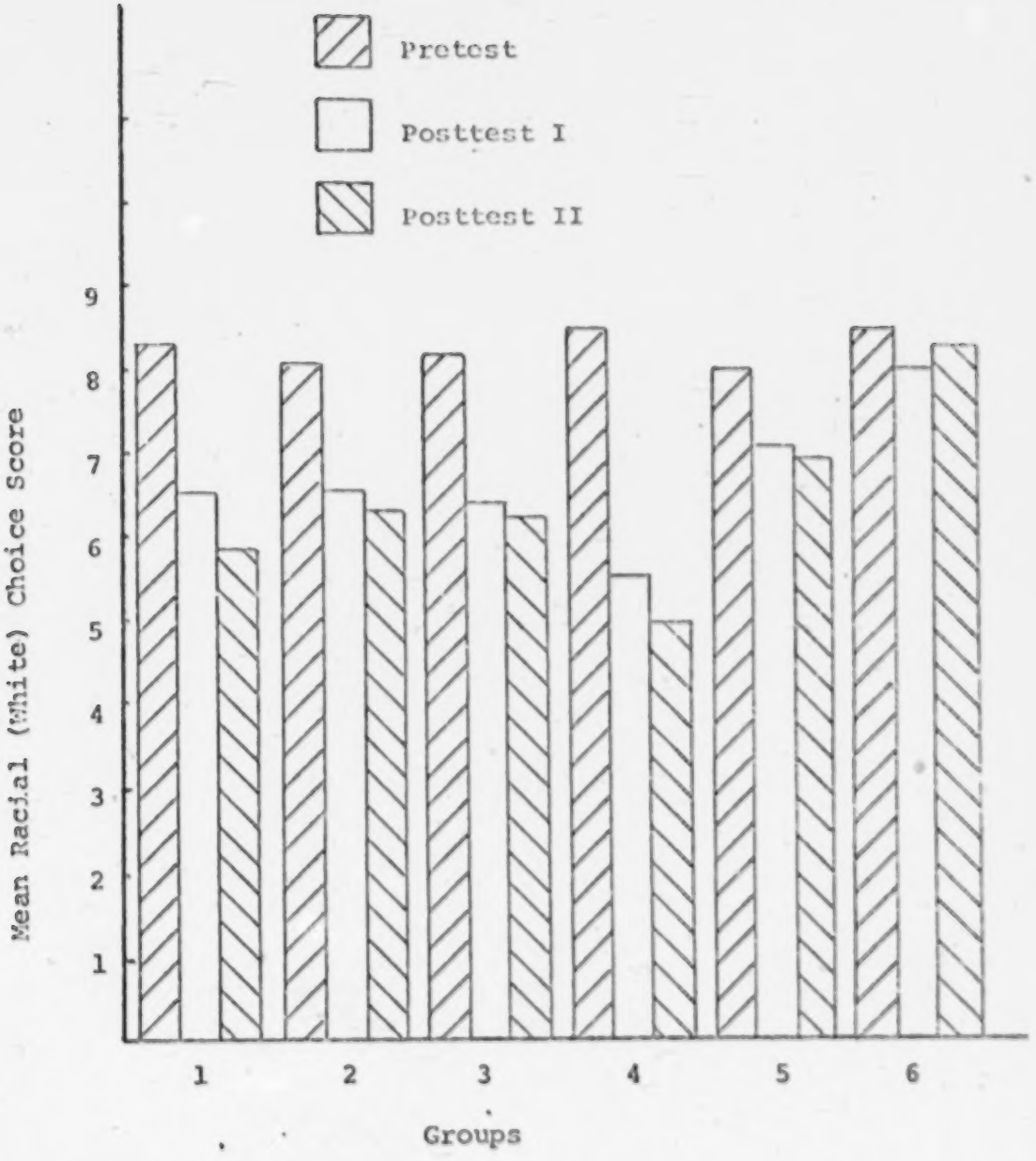
TABLE 3

Mean Pre- and Posttest White Racial Choices of Children Who Received Different Modeling Treatments

Modeling	Repeated Measures			Total
	Pretest	Posttest I	Posttest II	
Adult	8.12	6.50	6.00	6.87
Child	8.25	5.93	5.62	6.60
None	8.25	7.56	7.56	7.79
Total	8.20	6.66	6.39	7.08

Figure Caption

1. Comparison of mean scores of Pretest and Posttest I and II.


Pretest
Posttest I
Posttest II
Mean Racial (White) Choice Score
9
8
7
6
5
4
3
2
1
1
2
3
4
5
6
Groups